

IN THE CLAIMS:

Cancel claims 70-89 without prejudice or disclaimer. Present status of the claims is as follows:

Claim 70. (canceled)

A system for treating epileptic seizures comprising in combination:

- (a) at least one electrode having a proximal end and a distal end adapted to provide stimulation to a vagus nerve of a patient;
- (b) a sensor for generating a sensor signal indicative of a characteristic of a heart; and
- (c) an implantable signal generator coupled to the proximal end of the at least one electrode and providing stimulation energy in response to said sensor signal.

Claim 71. (canceled)

The system of claim 70 further comprising:

- (d) a switch coupled to the signal generator and operable by the patient, whereby the patient may manually turn on or off the vagus nerve stimulation.

Claim 72. (canceled)

The system of claim 70, further comprising:

- (d) a second sensor generating a second sensor signal indicative of a possible onset of a seizure, and wherein the signal generator is responsive to the second sensor signal.

Claim 73. (canceled)

The system of claim 72, wherein the second sensor is implantable to be in communication with a brain of the patient.

Claim 74. (canceled)

The system of claim 70, wherein the signal generated by the sensor is selected from the group consisting of an instantaneous heart rate (IHR) signal and a heart rate variability signal.

Claim 75. (canceled)

The system of claim 70, wherein the signal generated by the sensor is of heart pulse.

Claim 76. (canceled)

The system of claim 70, wherein the signal generated by the sensor is of a rate of change of a heart pulse.

Claim 77. (canceled)

The system of claim 70, wherein the signal generated by the sensor is an electrocardiogram (EKG) of a patient.

Claim 78. (canceled)

A method of minimizing effects to a heart of a patient comprising:

- (a) stimulating a vagus nerve;
- (b) measuring a characteristic of a heart selected from the group consisting of an instantaneous heart rate (IHR) and a heart rate variability;
- (c) determining whether the measured characteristic of the heart is within a normal range for the patient; and
- (d) if the heart is operating outside the normal range, adjusting stimulation of the vagus nerve to bring the heart within the normal range.

Claim 79. (canceled)

The method of claim 78, wherein (d) includes adjusting at least one characteristic of stimulation pulses provided to the vagus nerve, wherein the characteristic is selected from the group consisting of pulse shape, inter-stimulus interval, pulse frequency, pulse width, pulse amplitude, and pulse phase.

Claim 80. (canceled)

The method of claim 78, wherein (d) includes the step of turning off stimulation to the vagus nerve.

Claim 81. (canceled)

The method of claim 78, further comprising:

- (e) operating a pacemaker to maintain the heart within the normal range.

Claim 82. (canceled)

The method of claim 78, further comprising:

- (e) alerting the patient by way of a sensory signal.

Claim 83. (canceled)

The method of claim 82, wherein (e) includes providing an audio signal to the patient.

Claim 84. (canceled)

The method of claim 82, wherein (e) includes providing a vibrating signal to the patient.

Claim 85. (canceled)

A method of minimizing effects to a heart of a patient comprising:

- (a) stimulating a vagus nerve;
- (b) measuring a characteristic of a heart selected from the group consisting of an instantaneous heart rate (IHR) and a heart rate variability;
- (c) determining whether the measured characteristic of the heart is within a predetermined range; and

- (d) if the heart is operating outside the predetermined range, alerting the patient by way of a sensory signal of effects to the heart caused by the vagus nerve stimulation.

Claim 86. (canceled)

The method of claim 85, wherein (d) includes providing an audio signal to the patient.

Claim 87. (canceled)

The method of claim 85, wherein (d) includes providing a vibrating signal to the patient.

Claim 88. (canceled)

The method of claim 85, further comprising:

- (e) operating a pacemaker to maintain the heart within the normal range.

Claim 89. (canceled)

The method of claim 85, further comprising:

- (e) turning off stimulation to the vagus nerve.

Claim 90. (original)

A method of minimizing effects to a heart of a patient comprising:

- (a) implanting at least one electrode to be communication with a vagus nerve of the

body;

- (b) stimulating the vagus nerve with the at least one electrode;
- (c) identifying at least one phase of a heart pulse during which vagus nerve stimulation has reduced effect on the heart; and
- (d) providing stimulation only during the at least one identified phase of the heart pulse.

Claim 91. (original)

The method of claim 90, further comprising:

- (e) sensing an indication of a possible onset of a seizure.

Claim 92. (original)

The method of claim 91, wherein (e) includes sensing an electroencephalogram (EEG) of a patient.

Claim 93. (original)

The method of claim 91, wherein (e) includes sensing a cortical signal.

Claim 94. (original)

The method of claim 91, wherein (e) includes sensing an electrocardiogram (EKG) of a patient for an indication of a possible onset of a seizure.

Claim 95. (original)

The method of claim 91, wherein (e) includes sensing a characteristic of a heart selected from the group consisting of an instantaneous heart rate (IHR) and a heart rate variability

Claim 96. (original)

The method of claim 91, further comprising:

- (f) if a possible seizure onset is detected, providing a warning of the possible seizure onset.

Claim 97. (original)

The method of claim 96, wherein (f) includes providing an audio signal.

Claim 98. (original)

The method of claim 96, wherein (f) includes providing a vibrating signal.

Claim 99. (original)

The method claim 90, further comprising:

- (e) determining whether the measured characteristic of the heart is within a predetermined range; and
- (f) if the heart is operating outside the predetermined range, alerting the patient by way of a sensory signal.

Claim 100. (original)

The method claim 90, further comprising:

- (e) determining whether the measured characteristic of the heart is within a predetermined range; and
- (f) if the heart is operating outside the predetermined range, adjusting stimulation of a vagus nerve to bring the heart within the normal range.

Claim 101. (original)

The method claim 90, further comprising:

- (e) determining whether the measured characteristic of the heart is within a predetermined range; and
- (f) if the heart is operating outside the predetermined range, turning off stimulation to the vagus nerve.

Claim 102. (new; claim 71 rewritten independently)

A system for treating epileptic seizures comprising in combination:

- (a) at least one electrode having a proximal end and a distal end adapted to provide stimulation to a vagus nerve of a patient;
- (b) a sensor for generating a sensor signal indicative of a characteristic of a heart;
- (c) an implantable signal generator coupled to the proximal end of the at least one electrode and providing stimulation energy in response to said sensor signal; and

- (d) a switch coupled to the signal generator and operable by the patient, whereby the patient may manually turn on or off the vagus nerve stimulation.

Claim 103. (new; claim 73 rewritten independently)

A system for treating epileptic seizures comprising in combination:

- (a) at least one electrode having a proximal end and a distal end adapted to provide stimulation to a vagus nerve of a patient;
- (b) a sensor for generating a sensor signal indicative of a characteristic of a heart;
- (c) an implantable signal generator coupled to the proximal end of the at least one electrode and providing stimulation energy in response to said sensor signal; and
- (d) a second sensor generating a second sensor signal indicative of a possible onset of a seizure, and wherein the signal generator is responsive to the second sensor signal, wherein the second sensor is implantable to be in communication with a brain of the patient.

Claim 104. (new; claims 75 and 76 combined and rewritten independently)

A system for treating epileptic seizures comprising in combination:

- (a) at least one electrode having a proximal end and a distal end adapted to provide stimulation to a vagus nerve of a patient;
- (b) a sensor for generating a sensor signal indicative of a characteristic of a heart wherein the signal generated by the sensor is of a heart pulse or a rate of change of

a heart pulse; and

- (c) an implantable signal generator coupled to the proximal end of the at least one electrode and providing stimulation energy in response to said sensor signal.

Claim 105. (new; claim 80 rewritten independently)

A method of minimizing effects to a heart of a patient comprising:

- (a) stimulating a vagus nerve;
- (b) measuring a characteristic of a heart selected from the group consisting of an instantaneous heart rate (IHR) and a heart rate variability;
- (c) determining whether the measured characteristic of the heart is within a normal range for the patient; and
- (d) if the heart is operating outside the normal range, adjusting, including turning off, stimulation of the vagus nerve to bring the heart within the normal range.

Claim 106. (new; claim 89 rewritten independently)

A method of minimizing effects to a heart of a patient comprising:

- (a) stimulating a vagus nerve;
- (b) measuring a characteristic of a heart selected from the group consisting of an instantaneous heart rate (IHR) and a heart rate variability;
- (c) determining whether the measured characteristic of the heart is within a predetermined range;

- (d) if the heart is operating outside the predetermined range, alerting the patient by way of a sensory signal of effects to the heart caused by the vagus nerve stimulation; and
- (e) turning off stimulation to the vagus nerve.